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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Peter C. Williams

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02/08/2006

CALFEE HALTER & GRISWOLD, LLP  
800 SUPERIOR AVENUE  
SUITE 1400  
CLEVELAND, OH 44114

EXAMINER

BOCHNA, DAVID

ART UNIT

PAPER NUMBER

3679

DATE MAILED: 02/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/707,698	<b>Applicant(s)</b> WILLIAMS ET AL.	
	<b>Examiner</b> David E. Bochna	<b>Art Unit</b> 3679	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2005.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 30-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 30-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 10-11, 13-14, 30-31 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Kowal et al. (US. 4,556,242).

The Kowal et al. coupling discloses in fig. 1 a tube fitting 10 having a fitting body 11 with a cylindrical bore 14 for receiving a tube end "T" and including a tapered mouth 13 at one end of the bore that forms a camming surface. A drive member 18 joinable with the body via threads 22, 23 and having a ferrule drive surface 20. A ferrule 24 has a tapered nose portion 28 that extends into the tapered mouth 13 of the fitting body 11 with a cylindrical interior wall 26 that closely surrounds the tube end "T" and a driven surface 37, 38 on a back end thereof that engages the ferrule drive surface 37,38. The ferrule has a rear portion of the cylindrical interior wall that is radially spaced from the tube end upon pull-up of the fitting. Compare figs. 1 and 2 wherein fig. 2 illustrates the rear portion of the ferrule in the pull-up position. A forward edge of the tapered nose portion 27 penetrates 29 an outer surface of the tube end "T" caused by radial inward compression of the forward edge as the tapered nose portion slides against the camming surface during pull-up (this is the case since the radial inward compression of the forward edge contacts the outer surface of the tube end) and a collet portion 29 of the substantially continuous cylindrical interior wall is axially behind the forward edge and upon pull-up of the fitting is

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deformed radially against the outer surface of the tube end to grip the tube end. The collet portion providing a swaged region 29 near the forward edge which in longitudinal cross-section is convex portion (the indentation in the tube T at 29 in fig. 2 is concave and forward portion 29 of the ferrule 27 is contoured to the tube's exterior, giving the collet a convex shape) of the cylindrical interior wall of high friction engagement between the nose portion and the tube outer surface (this is the case since the collect portion deforms radially inwardly to form a convex portion that contacts the outer surface of the tube). Again compare figs. 1 and 2 wherein fig. 2 illustrates the collet portion 24 or 30 of the ferrule being radially deformed against the tube. The outer surface of the tube and is compressed by the collet portion with high radial gripping pressure has shown by figure 2. As to claims 13, the drive member ferrule drive surface initially contacts the ferrule driven surface at a location radially outwardly to at least a central portion of the ferrule driven surface has clearly shown in figure 1. As to claims 14, the cross-hatching clearly indicates a metal composition. As to claim 31, see column 2, lines 45 to 55. As to claim 34, note that the driven surface at the back end of the ferrule is a convex curved surface.

3. Claims 10-11, 13-14 and 30-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Pugliese 3,695,647.

In regard to claims 10 and 30, Pugliese discloses (figs. 4 and 5) a fitting body 1 having a cylindrical bore for receiving a tube end 4 and including a tapered mouth at one end of said bore that forms a camming surface; a drive member 7 joinable with said body and having a ferrule drive surface; a ferrule 6 having a cylindrical interior wall that closely surrounds the tube end, a tapered nose portion that extends into said tapered mouth, and a driven surface 10 on a back end thereof that engages said female drive surface; said ferrule having a rear portion of said

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cylindrical interior wall that is radially spaced from the tube end upon pull-up of the fitting (see space between back of 6 and 4 in fig. 4 or 5), a forward edge of said tapered nose portion that penetrates an outer surface of the tube end caused by radial inward compression of said forward edge as said tapered nose portion slides against said camming surface during pull-up, and a collet portion of said cylindrical interior wall of said nose portion that is axially adjacent said forward edge; upon pull-up of the fitting said collet portion is deformed by a toggle-like hinging action that results from radially inward deformation of said nose portion and said rear portion moving radially outward from said outer surface of the tube end about a region of said ferrule that joins said rear portion to said collet portion, said collet portion providing a swaged region near said forward edge which in longitudinal cross-section is a convex portion 26 of said cylindrical interior wall of high frictional engagement between said nose portion and the tube outer surface.

In regard to claim 11, said collet portion 26 is radially compressed against said outer surface of the tube end to collet the tube end with a high radial gripping pressure.

In regard to claim 13, wherein said drive member ferrule drive surface initially contacts said ferrule driven surface at a location radially outward to at least a central portion of said ferrule driven surface (top of concave portion 10 is at a central portion of the driven surface).

In regard to claim 14, wherein said ferrule 6 comprises metal.

In regard to claim 31, the collet portion 26 is axially behind the indented front edge.

4. Claims 10-11, 13-14 and 30-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Lennon 3,584,9000.

In regard to claims 10 and 30, Lennon discloses a fitting body 12 having a cylindrical bore for receiving a tube end and including a tapered mouth 106 at one end of said bore that

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forms a camming surface; a drive member 46 joinable with said body and having a ferrule drive surface; a ferrule 44 having a cylindrical interior wall that closely surrounds the tube end, a tapered nose portion 52 that extends into said tapered mouth, and a driven surface on a back end thereof that engages said female drive surface; said ferrule having a rear portion of said cylindrical interior wall that is radially spaced from the tube end upon pull-up of the fitting (see fig. 4), a forward edge 52 of said tapered nose portion that penetrates an outer surface of the tube end caused by radial inward compression of said forward edge as said tapered nose portion slides against said camming surface during pull-up, and a collet portion of said cylindrical interior wall of said nose portion that is axially adjacent said forward edge; upon pull-up of the fitting said collet portion is deformed by a toggle-like hinging action that results from radially inward deformation of said nose portion and said rear portion moving radially outward from said outer surface of the tube end about a region of said ferrule that joins said rear portion to said collet portion, said collet portion providing a swaged region near said forward edge which in longitudinal cross-section is a convex portion (see fig. 8 where the deformation process of 52 is shown at different locations and ending with a convex interior surface) of said cylindrical interior wall of high frictional engagement between said nose portion and the tube outer surface.

In regard to claim 11, said collet portion 52 is radially compressed against said outer surface of the tube end to collet the tube end with a high radial gripping pressure.

In regard to claim 13, wherein said drive member ferrule drive surface initially contacts said ferrule driven surface at a location radially outward to at least a central portion of said ferrule driven surface.

In regard to claim 14, wherein said ferrule 44 comprises metal.

In regard to claim 31, the collet portion is axially behind the indented front edge.

*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-8, 12, 32 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 4,556,242 to Kowal et al. in view of U.S. patent 2,171,217 to Kreidel and U.S. patent 2,230,116 to Kreidel.

As noted above the Kowal discloses all of the features of the claimed device however it is not taught to case hardened the ferrule about its entire surface. The patent 2,171,217 to Kreidel and 2,230,116 to Kreidel both disclose that it is known in the prior art to provide a similar type coupling with the ferrule 10 of Kreidel '217 and the ferrule b of Kreidel '116 being case hardened (see Kreidel '217 page 2, column 1, lines 65-75 continuing to column 2, lines 1-10 and Kreidel '116 page 1, column 2, lines 15-50) in order to properly bit into the inserted tube. It would have been obvious to one having ordinary skill in the art at the time the invention was made to harden the ferrule of Kowal as taught in the prior art of either Kreidel '217 or Kreidel '116, in order to provide a more secure coupling for the inserted tube due to increased compressibility of the ferrule into the surface of the softer inserted tube and thereby insuring a steadfast connection.

7. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 4,556,242 to Kowal et al. in view of U.S. patent 5,954,375 to Trickle et al.

As noted above the Kowal et al. coupling discloses the claimed device however the inner surface of the ferrule is continuous and does not include a recess between the front portion and the rear portion. Trickle et al. discloses that it is known in the art to provide a similar type coupling with a recess 258 along the inner surface of the ferrule 218 (see fig. 15 and columns 10-11) for added gripping of the tube due to increased hinging of the ferrule. It would have been obvious to one having ordinary skill in the art at the time the invention was made to fabricate a recess in the inner surface of the ferrule of Kowal et al. such as taught by recess 258 of Trickle et al. in order to provide a more secure coupling for the inserted tube owing to increased compressibility of the ferrule due to the hinging effect of the front portion of the ferrule.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 4,556,242 to Kowal et al. in view of U.S. patent 4,304,422 to Schwarz.

As noted above the Kowal et al. coupling discloses the claimed invention except for the particular material of the ferrule being stainless steel. It would have been obvious to one having ordinary skill in the art at the time the invention was made to fabricate the ferrule from a well known corrosion resistance material such as stainless steel such as disclosed by Schwarz in column 4, line 47 that it is known in the art to construct a similar type ferrule in a similar type coupling from stainless steel in order to improve the couplings resistance to corrosion and since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

9. Claim 9 is rejected under 35 U.S.C. § 103 as being unpatentable over U.S. patent 4,556,242 to Kowal et al. in view of U.S. patent 2,171,217 to Kreidel and U.S. patent 2,230,116



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to. Kreidel as applied to claims 1-8,12,17,22,25,32 and 35 above, and further in view of U.S. patent 4,304,422 to Schwarz.

As noted in the above rejection the combination of Kowal et al. and Kreidel '217 and Kreidel '116 discloses the claimed invention except for the particular material of the ferrule being stainless steel. It would have been obvious to one having ordinary skill in the art at the time the invention was made to fabricate the ferrule of Kowal et al. from a well known corrosion resistance material such as stainless steel such as disclosed by Schwarz in column 4, line 47 that it is known in the art to construct a similar type ferrule in a similar type coupling from stainless steel in order to improve the couplings resistance to corrosion and since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

10. Claims 1-5, 8-9, 12, 15, 32 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pugliese '647.

In regard to claims 1, 9, 12, 15, 32 and 35, Pugliese discloses a tube fitting, comprising: a fitting body 3 having a cylindrical bore for receiving a tube end and including a tapered mouth at one end of said bore that forms a camming surface; a drive member 8 joinable with said body and having a ferrule drive surface 7; and a ferrule 6 having a tapered nose portion 26 that extends into said tapered mouth of the fitting body, a substantially continuous cylindrical interior wall that closely surrounds the tube end, and a driven surface on a back end thereof that engages said ferrule drive surface, said ferrule having a rear portion of said cylindrical interior wall that is radially spaced from the tube end upon pull up of the fitting (see fig. 4), a forward edge of said

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tapered nose portion that penetrates an outer surface of the tube end caused by radial inward compression of said forward edge as said tapered nose portion slides against said camming surface during pull-up, and a collet portion of said substantially continuous cylindrical interior wall of said nose portion that is axially adjacent said forward edge upon pull-up of the fitting said collet portion is deformed substantially radially inwardly by a hinging action of the ferrule between said back end and said forward edge to produce a swaged region near said forward edge which in longitudinal cross-section is a convex portion of said cylindrical interior wall, with said convex portion 26 being compressed against said outer surface of the tube end to collet the tube end. Pugliese does not disclose that the ferrule is case hardened or made out of stainless steel. However, it would have been obvious to one of ordinary skill in the art to make the ferrule case hardened or out of stainless steel because the selection of a known material based upon its suitability for the intended use is a design consideration within the skill of the art. In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960).

In regard to claim 2, wherein said ferrule is deformed during pull-up of the fitting by a toggle-like hinging action.

In regard to claim 3, wherein said toggle-like hinging action results from said rear portion moving radially outward from said outer' surface of the tube end about a region of said ferrule that joins said rear portion to said collet portion.

In regard to claim 4, wherein said toggle-like hinging action causes said collet portion to be radially compressed against said outer surface of the tube end with a high gripping pressure upon pull-up of the fitting.

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In regard to claim 5, wherein said drive member ferrule drive surface initially contacts said ferrule driven surface at a location radially outward to at least a central portion of said ferrule driven surface.

In regard to claim 8, the ferrule is metal.

11. Claims 1-5, 8-9, 12, 15, 32 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lennon '900.

In regard to claims 1, 9, 12, 15, 32 and 35, Lennon discloses a tube fitting, comprising: a fitting body 12 having a cylindrical bore for receiving a tube end and including a tapered mouth 106 at one end of said bore that forms a camming surface; a drive member 34 joinable with said body and having a ferrule drive surface 46; and a ferrule 44 having a tapered nose portion 52 that extends into said tapered mouth of the fitting body, a substantially continuous cylindrical interior wall that closely surrounds the tube end, and a driven surface on a back end thereof that engages said ferrule drive surface, said ferrule having a rear portion of said cylindrical interior wall that is radially spaced from the tube end upon pull up of the fitting (see fig. 4), a forward edge of said tapered nose portion that penetrates an outer surface of the tube end caused by radial inward compression of said forward edge as said tapered nose portion slides against said camming surface during pull-up, and a collet portion of said substantially continuous cylindrical interior wall of said nose portion that is axially adjacent said forward edge upon pull-up of the fitting said collet portion is deformed substantially radially inwardly by a hinging action of the ferrule between said back end and said forward edge to produce a swaged region near said forward edge which in longitudinal cross-section is a convex portion (see fig. 8) of said cylindrical interior wall, with said convex portion being compressed against said outer surface of

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the tube end to collet the tube end. Lennon does not disclose that the ferrule is case hardened or made out of stainless steel. However, it would have been obvious to one of ordinary skill in the art to make the ferrule case hardened or out of stainless steel because the selection of a known material based upon its suitability for the intended use is a design consideration within the skill of the art. In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960).

In regard to claim 2, wherein said ferrule is deformed during pull-up of the fitting by a toggle-like hinging action.

In regard to claim 3, wherein said toggle-like hinging action results from said rear portion moving radially outward from said outer' surface of the tube end about a region of said ferrule that joins said rear portion to said collet portion.

In regard to claim 4, wherein said toggle-like hinging action causes said collet portion to be radially compressed against said outer surface of the tube end with a high gripping pressure upon pull-up of the fitting.

In regard to claim 5, wherein said drive member ferrule drive surface initially contacts said ferrule driven surface at a location radially outward to at least a central portion of said ferrule driven surface.

In regard to claim 8, the ferrule is metal.

### ***Response to Arguments***

12. Applicant's arguments filed 12/21/05 have been fully considered but they are not persuasive.

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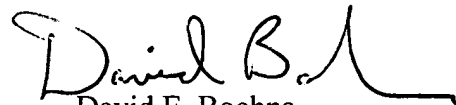
Applicants' argument that Kowal does not teach the added limitation to the claims is not persuasive because Kowal does teach a swaged convex region near the forward edge of the ferrule at 29, as explained in further detail in paragraph 2 above.

*Conclusion*

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Bochna whose telephone number is (571) 272-7078. The examiner can normally be reached on 8-5:30 Monday-Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached on (571) 272-7087. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "David E. Bochna", with a stylized flourish extending from the end.

David E. Bochna  
Primary Examiner  
Art Unit 3679